EFFECT OF MACROECONOMIC FACTORS ON THE FIRM VALUE OF LISTED COMMERCIAL BANKS IN KENYA

YUSSUF ABDULLAHI ADAN

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DECLARATION

This research project is my original work and has not been presented for the purpose of degree award in any other university.

Yussuf Abdullahi Adan **Reg. No. 15/01935**

Signature: …… Date: ……

I do hereby confirm that I have examined the master's dissertation and have certified that all revisions that the dissertation panel and examiners recommendations have been adequately addressed.

Dr. Peter Kariuki **Dissertation Supervisor**

Signature: ……Date: ……..

DEDICATION

This project is dedicated to my dear parents, brothers, and sisters for their constant support and encouragement.

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ACRONYMS AND ABBREVIATIONS

BK: Bank of Kigali

CBK: Central Bank of Kenya

EPS: Earnings per share

GARCH: Generalized Autoregressive Conditional Heteroscedasticity

IFE: Interest Fisher Effect

KNBS: Kenya National Bureau of Statistics

NBK: National Bank of Kenya

NSE: Nairobi Stock Exchange

OLS: Ordinary Least Squares

PLC: Public Limited Company

ROA: Return on Assets

USD: United States Dollar

VIF: Variance Inflation Factor

OPERATIONAL DEFINITION OF KEY CONCEPTS AND TERMS

Commercial banks: These are financial institutions that provide borrowing and lending services (Kolapo, Ayeni, & Oke, 2012).

Economic growth: It is characterized as the market value of the final goods and services in a country over a given duration which is normally adjusted for inflation (Acemoglu, 2012).

Interest rate: this is a measure of the cost of capital that must be spent by the company on the use of funds from the owners of capital (Holston, Laubach, & Williams, 2017).

Exchange Rate: This alludes to the required amount of local currency that one needs in acquiring foreign currency (Williamson, 2009). In this case, the usage of the Kenyan shilling against the US Dollar was considered.

Firm value: It is an economic term that alludes to the value that a business is worthy of at a particular date representing the price that is willing to be paid by prospective buyers if the firm is sold (Endri, 2018).

Inflation: This is described as the overall increase in the prices of various goods as well as services in a given economy at a particular time period (Billi & Kahn, 2008).

Macroeconomic factors: these are factors outside the specific performance of a given company that may affect its underlying outlook (Singh, Mehta, & Varsha, 2011).

Nairobi Securities Exchange: It is an organized market where stocks and shares are issued, bought and sold through the services of stockbrokers/dealers (Omondi & Muturi, 2013).

ABSTRACT

This study evaluated the relationship that existed between macroeconomic variables and the firm value of the listed commercial banks in Kenya. From the available literature, it had been found that differing opinions and findings existed on the nature of the impact of macroeconomic variables on firm value. In addition, studies conducted to assess the link between macroeconomic factors and the firm value of listed commercial banks in Kenya were found to be scanty. Hence, it is not clear whether or not macroeconomic conditions influence the firm value of Kenya's commercial banks. The internal factors may be regulated by each institution but not the macroeconomic factors. The main objective of this study therefore was to ascertain the effect of selected macroeconomic factors on the firm value of banks listed in Nairobi Stock Exchange. The macroeconomic factors selected constituted of inflation levels, economic growth, exchange rates and interest rates. Specifically, the study sought to investigate the influence of economic growth, inflation rates, interest rates and exchange rates on the firm value of Kenya's listed commercial banks. The study was guided by theshareholder value theory, foreign exchange exposure theory, theories of inflation and the Keynesian economic theory. The study applied a descriptive research design. The study targeted all the listed commercial banks at the Nairobi Stock Exchange for the period 2008 to 2019. A census approach to sampling was applied. The study used secondary data collected using a secondary data collection template. Descriptive analysis and also inferential analysis were conducted when analyzing the data. A panel data regression model was used to show the relationship between macroeconomic factors and the firm value of listed commercial banks in Kenya. A statistical software, Stata was used to facilitate the data analysis exercise. The findings' presentation took the form of tables and charts. The study established that three of the macroeconomic factors considered in this study namely economic growth, inflation rate and exchange rate had a significant effect on the firm value of listed commercial banks in Kenya over the study period. Interest rate however, was found to have insignificant effect on the firm value of these banks. Economic growth positively influenced the firm value of the listed commercial banks under study while inflation rate, exchange rate as well as interest rate negatively influenced the firm value of these banks. The study therefore concluded thatmacroeconomic factors particularly economic growth, inflation rate and also exchange rate are significant factors that influenced the firm value of listed commercial banks in Kenya and therefore, it was prudent for the management of banks to consider them when evaluating the factors likely to impact the value of their banks. Several recommendations were made to various parties among them the need for policy makers and economists at the Central Bank of Kenya in conjunction with other regulators to undertake sound planning in advance so as to influence macroeconomic variables in the right direction. The banks' management should also strive to ensure sustained high firm value for the sake of the stability of their operations as well as good prospects for their banks in the future. This will enhance their survival. The banks' management also ought to develop their banks' capabilities to be highly sensitive in anticipating the effect of macroeconomic factors which are external forces to their firms and are unavoidable. The findings of this study would therefore benefit several key stakeholders such as the banks' management, market and industry regulators, investors as well as other scholars pursuing related research.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter of the study introduces the topic under investigation by giving a background of the study subject, explaining the problem of the study, objectives of the study, the significance of the study, scope and the limitations of the study.

1.2 Background of the Study

Commercial banks have a significant impact on the economy as they serve as financial intermediaries between people with a financial surplus (lenders) and those with a financial deficit (borrowers) (Anbar & Alper, 2011). The main roles of commercial banks range from matching demand and supply, working with financial instruments, offering payment channels, promoting financial markets, providing market transparency and risk management (Anbar et al., 2011). Banks participate in the economicadvancement of nations and economies across the globe through the use of investment funds and, at the same time, boost the country's financial development (Otuori, 2013). Beyond the ordinary intermediation role of commercial banks, they also ensure a good firm value that rewards shareholders and ultimately promotes the country's overall economic development (Ongore & Kusa, 2013).

A sound banking system isa fundamental part of a nation's overall economic growth. For instance, in the 19th century, the Industrial Revolution in Europe may have been unlikely in the absence of a stable commercial banking system. According to Pakistan's 10-year plan paper on banking sector reforms, the banking sector is at the heart of Pakistan's financial industry, with an 88% share that significantly boosts economic growth in the country (Kanwal & Nadeem, 2013). Based on Aysan and Ceyhan (2008), the Turkish banking system has historically held a critical role in the Turkish financial system, focused on a universal

banking structure that legally enables commercial banks to operate various sorts of activities in the financial markets. A large percentage of money market transactions and activities are handled by banks, indicating that the banking sector is a paramount source of financing for economic growth in Turkey.

In Africa, South Africa is the country with the best economy in terms of gross domestic product, followed by Nigeria. Nigeria's GDP growth has increased on average from 6 to 7% since 2003. Gross domestic product per capita rose from below USD700 in 2004 to USD1418 in December 2009, representing an increase in economic growth in Nigeria mostly due to Nigerian commercial banks (Osamwonyi & Michael, 2014). In sub-Saharan Africa, Flamini et al.(2009) observes that commercial banks are estimated to be more successful than elsewhere in the world, where their annual returns from assets was an average of 2%. The rationale for commercial banks' high level of profits is investment in risky projects in which high risk is correlated with high returns.

In Kenya, commercial banks are construed to be the backbone of the country's economy growth (World Bank, 2016). Most notably, commercial banks have made an enormous contribution to Kenya's financial growth as a nation. According to Bank Supervision Annual Report 2018, the financial sector particularly banks has, generally, been stable and resilient indicating a 10.14 percent rise in overall net assets which is the difference between Ksh. 4.41 trillion and Ksh. 4 trillion in previous year (Central Bank of Kenya, 2018). This increase was achieved regardless of the fact that the global economic outputs decreased from 3.8% in 2017 to 3.6% in 2018. This was due to a numbers of factors including tariffs hikes and tariffs tensions between China and United States, a downturn in corporate morale, a tightening of financial conditions and heightened policy instability.

The domestic economic growth rose to 6.3% in 2018 from 4.9% in 2017. This was largely due to improved productivity across all agricultural activities following propitious weather

conditions compared to 2017. The overall inflation level reduced from 8.0% in 2017 to 4.7% in 2018 as a result of stable food prices, lower fuel and electricity prices, and subdued demand pressures stemming from incisive monetary policy.

1.2.1 Firm Value of Commercial Banks

Maximizing resources or overall value is practically the main objective of all commercial banks. The maximization of the value of a firm is deemed crucial since it translates to enhanced growth in shareholders' wealth (Delaney & Thijssen, 2015). Firm value is the valuation of the bank added to the stock price, which is basically the company's value as a whole. In this case the firm valuation is the estimate of the overall value of the bank. According to Oluwagbemiga (2014), firm value is measured as the market value of the common stock added to the market value of the preference shares plus debt market and minority interest subtracted by cash and investments. It is the theoretical take over price, if a firm was to be bought.

There are different measures of firm value such as; return on assets (Clarkson et al., 2008) which measures the income generated by a firm as a percentage of the value of the total assets. Return on Assets explains what earnings were generated from the assets. The other measure is Return on Equity (Abor, 2005) which measures how management is effectively using a firm's assets to generate income. ROE discloses what return investors take home for their investments. The third common measure is Market Capitalization (Saeedi & Mahmoodi, 2011) found by taking company's fully diluted shares that are outstanding and multiplying by the price of stocks. The fourth measure is Tobin's Q (Dushnitsky & Lenox, 2006) which is measured as the aggregate market value which includes liabilities and equity over the total assets value.

The firm value is measured as the market value of the common stock that is identified by taking out completely diluted shares of the company that are outstanding and multiplying by

the stock price plus the gross liability that is a commitment of banks and other investors minus cash and reserves that are the most stable assets in the financial statements of a company. Firm value is best measured using Tobin's Q ratio according to (Waweru et al., 2008). By use of Tobin's Q, firm value was calculated as equity market value ratio to the equity book value (Dushnitsky et al., 2006).

The firm value of commercial banks can be influenced by internal (microeconomic) and macroeconomic (external) factors (Ongore et al., 2013). The internal/exogenous factors are individual characteristics determined by the management and board of directors. The exogenous factors are factors outside the company's influence. Ownership identity can also impact the value of firms (Ongore, 2011). In most research carried out, macroeconomic factors form a huge portion of the extrinsic benefit. The most prevalent macroeconomic factors that have been pinpointed among others are economic growth, inflation, interest rate, exchange rate (Haron & Azmi, 2004).

The financial industry has also undergone significant metamorphosis around the world as a result of technical progress, removal of regulation or restrictions and globalization. Both internal/intrinsic and external factors have altered the structure and firm value of the banking industry in one way or another (Ally, 2014). Despite this increased trend, the banking industry can tolerate negative shocks better and still contribute to a country's financial sector. Hence the factors that influence firm value in commercial Banks have attracted the interest of academic researchers, analysts, bankers, policy makers and regulators.

1.2.2 Macroeconomic Factors

Brinson et al. (1991)described macroeconomic factors as being relevant at regional or national level in the broad economy. The variables described as having a significant impact include interest rates, inflation rates, gross domestic product and exchange rates. Such variables matter to all stakeholders, including company owners, customers, service firms and

policy makers (government). Such variables are critical to banking sector because they directly influence the firm value.

Economic growth as described by Asaolu and Ogunmuyiwa (2011) is the total revenue produced by several output factors over a span of time in a particular area. Aguiar and Broner (2006), consider inflation a gradual or prolonged long-term rise in the cost of services and goods. This is attributed to an increase in profits that is not proportionate to the growth in the output of services and goods. This leads to additional money being used in the search for a few commodities due to the high prices of services and goods, which contributes to a glaring drop in disposable income. This also reduces the buying ability of low-income taxpayers. Since low-income taxpayers make up the majority of the population of a country, the decrease in buying power contributes to lower savings rates that eventually influence the productivity of the securities exchange (Willy & Ogeto, 2012).

Interest rate is described as the amount of interest as a percentage of amount borrowed or loaned also referred to as principal sum. The interest is a burden to the creditor whereas it is a source of income for the lender. Usually interest rates are paid annually, and their sums are calculated by and commensurate to the risk thresholds of the borrower. The amount borrowed would then be invested in activities or uses that yield more returns than the cost of the loan, to make economic sense (Agyapong et al., 2011). The interest rate is contingent on different variables, such as supply and demand for foreign currency, current account status, revenue position and the value of capital market.

Samuelson and Nordhaus (2010), describe the exchange rate as one currency’s prices reflected in another currency. In reality, modification of the actual exchange rate rather than its absolute level is necessary. Instead of focalizing on the nominal exchange rate, monitoring the actual exchange rate is more prudent when determining the impact of exchange rates on foreign markets or the country's export competitiveness.

1.2.3 Macroeconomic Factors and Firm Value

According to Flota (2009), a firm's value can be influenced deeply by outward macroeconomic factors. The author argues that the systematic risk drawn from hasty change of the external macro-economic environment exerts a great influence on a firm's value. For instance, the volatilities of commodity prices and interest rates could play a role in affecting a firm's performance and hence, their corporate value (Bartram, 2015). These factors cannot be obviously noted from financial statements. However, it is important for the firms to explore the impact of uncertainty resulting from the macroeconomic environment on their value more exactly and further to engage in relative risk management (Karakus & Bozkurt, 2017).

Lettau and Wachter (2011) suggests that interest rate is among the factors likely to influence the value of a firm. They argue that increasing interest rates will encourage people to save. It will also affect the level of corporate debt. As a result, the funding received by the company will decrease and implies to slow down of company's expansion (Lin, Wang, Wang, & Yang, 2018). In the end, this condition will cause a decrease in firm value. Therefore, the general increase in interest rates will break firm value (Wirakusuma, 2013).

Fluctuations and changes in interest rate could lead to a mismatch between interest paid on deposits and interest received on loans (English, Van den Heuvel, & Zakrajsek, 2012). Theoretical arguments sustain that due to interest raterisk, investors are likely to experience losses due to factors that affect the overall performance of the financial markets. More importantly, as noted by Aruwa and Musa (2014), the net interest margin of the banking sector could be exposed to interest rate changes for a period if a large number of banks, presumably responding to the same or similar market signals, choose to take on similar exposures. Some prior studies found that interest rate risk has a negative impact on firm value of banks (Sugiharto, Sulistiowati, & Nofiyanti, 2019; Yousfi, 2012).

Rising interest rates in a country may result to investors withdrawing capital investment in the capital markets thus causing the share prices of listed firms to decline (Fuad & Wandari, 2018; Adiputra, 2016;Li& Khurshid, 2015). The decrease in stock price will impact the valuation by investors who would view the company's performance as having declined and hence, reduced company value. The investor will contrast with other investments such as stocks, bonds and types of other investment, the interest rate that is high would hurt the capital markets because investors would prefer investing in time deposits which have a level lower risk, so make stock company to decline, shares fell because the value of company go down (Ifionu& Ibe, 2015).

The value of the firm equals the present value of all expected future cash flows. If a change in the foreign currency exchange rate affects a firm's expectations of current and future cash flows, it can directly impact the market value of its equity (Flota, 2014).The complexities of the relationship between exchange rate changes and firm value are compounded by whether the firm has assets abroad or liabilities denominated in a foreign currency, or both (Avutswa, 2020). Thus, the firm's exposure, or sensitivity of its value to changes in the exchange rate, could vary significantly depending on the geographical location of its assets and the currency composition of its corporate debt (Lane& Shambaugh, 2010).

Companies' involvement in global activities through international trade is the primary source of their foreign exchange exposure (Muller& Verschoor, 2006). Many empirical studies suggest the negative impact of uncertainty about the development of the exchange rate on cash flow and profitability of companies, and thus their market values(Frazer & Pantzalis, 2004; Muller &Verschoor, 2006). Some economic studies show that foreign revenues are positively correlated with the exchange rate exposure and in a short period, currency depreciation negatively affects the market value of listed companies (Pan, Fok, & Liu, 2007). On the other hand, there are studies that show no statistically significant links between the

value of the companies and exchange rates(Stavárek, 2005).Even some empirical studies confirm the assumption that foreign exchange exposure is significantly different across industries(Ampomah et al., 2013).Therefore, grouping firms by certain characteristics, notably industry sector can lead to a less noisy estimate of their currency exposure.

Economic growth can be characterized as the market value of the final goods and services in a nation over a specified duration which is normally adjusted for inflation (Rodrik, 2008). Many aspects related to demand and supply for bank loans and deposits are likely to be influenced by economic growth of a given country (Abduh& Omar, 2012). According to these authors, relevant literature on financial sector performance and economic growth, economic growth is projected to have a favorable influence on banks' firm value. Maina and Ishmail (2014) observe that GDP growth rate affects the firm's expected future cash flows which in turn affects the firm's capacity to borrow, pay dividends, raise equity and invest in long term assets and thereby affecting the its market valuation.

Bolt et al. (2012)indicates that negative economic conditions, for instance, reduced rates of economic growth, might also reduce loans, deposits and their handling costs. In addition, the costs of collecting loan payments may also be elevated. A higher level of economic growth therefore means higher disposable income, lower unemployment and lower the rate of defaults on consumer loans thus increased bank value (Louzis, Vouldis, & Metaxas, 2012). Thus, economic growth is pro-cyclical with net interest earnings and debt defaults. Among the various elements of bank firm value, loan losses are the major driver of this result.

Despite weakening global growth prospects, inflation has risen around the world during the current economy and financial crises (Woodford, 2012). Besides its direct impacts, for instance increased purchase prices or wages, the rapid increase in the rate of inflation in recent years has led to a great deal of concern about the effects of inflation on firm's cash-flow and hence, its value (Ali& Ibrahim, 2018).According to Konchitchki (2011), inflation, a

state of rising prices or of disequilibrium in which an expression of purchasing power tends to cause increase in price level, impacts heavily on costs and revenues, assets and liabilities. In case of monetary assets and liabilities, a company loses as a creditor and gains as a debtor in real terms. Singh, Mehta, and Varsha (2011) affirma perfect negative relationship between inflation and the value of the firm. They argue that firms must ensure that in their choice of viable investments, specifically, purchase of fixed assets to incorporate the inflation rate to arrive at realistic net present values.

In the analysis of capital markets, Ifeanyi and Chukwuma (2016) observe that when inflation rises, it is usually accompanied by an increase in interest rates and that inflation has a tendency to influence capital market players either directly or indirectly. High inflation conditions can cause prices to rise in raw material production so that production prices increase and it ultimately causes the expected costs to increase and inflation which is caused by cost-push inflation (Singh, Mehta, & Varsha, 2011). Inflation can also cause a decrease in demand which causes profitability to decline. Based on this explanation, the increase in inflation can reduce the level of profitability and market value of the company and vice versa if inflation tends to decline, causing the company's profitability tends to increase thus the changes in inflation affect the profitability of the company (Ruslim& Michael, 2019).

Within the banking sector, Karini (2009) argues that inflation negatively affects firm value of banks by decreasing disposable personal income and savings of people which reduces the level of bank deposits and also because when inflation levels go up, the goods or even services demanded by individuals decreases which implies a decline in the bank loans demanded by customers. Increase in inflation rate also lead to increased lending interest rates which might also translate to reduced bank loans associated with high financing costs (Wismantara, 2017). This is an unattractive circumstance for borrowers and they might

abstain from acquiring bank loans. This adversely influences bank's profits and performance and ultimately their firm value.

1.2.4 Banking Sector in Kenya

As of 2018, the Kenya's banking sector made up of the Central Bank of Kenya (CBK), as the regulator and legal authority, forty-three banking institutions, thirteen microfinance companies, seventy foreign exchange bureaus, nine representative offices of foreign banks, three credit reference bureaus, eight non-operating bank holding companies and nineteen money remittance providers. Of the forty-three financial institutions, forty were owned private companies while three institutions had majority control of the Kenya government. Of the forty private-owned banks, twenty-five were held locally, and fifteen were owned by foreigners. The twenty-five institutions owned locally included twenty-four commercial banks and one mortgage finance company.

With regard to the asset value and the level of services provided, commercial banks are the sole most important classification of financial institutions in the banking sector. In a country where commercial banks dominate the industry, any failures within the industry has an important impact on the macroeconomic growth of the nation(Ongore et al., 2013). Commercial banks dominated in banking sector at end 2018 with a market share of 49.51% of the assets of the entire of financial system (Financial Sector Stability Report 2018 - Central Bank of Kenya).

1.3 Statement of the Problem

In Kenya, banks are striving to avoid the macroeconomic instabilities and threat that arise and hamper growth process. Wide operational variables made up of interest rate, exchange rate, economic growth and inflation are likely to affect the firm value of the banks. Macroeconomics shocks may affect the firm value by affecting the bank lending, interest

rates and stock market. This poses a threat as well as opportunities to the shareholders. Therefore, the bank managers ought to position their banks by adequately adapting to the macroeconomic changes and there by safeguarding the shareholder's interests.

Rosyadi (2014) observed that macroeconomic volatility has impact on the firm value of commercial banks which presents a challenge for managers of commercial banks in their core role of bank management. Ebenezer et al. (2019) examined the relationship of interest rate on banks in Malaysia, Singapore, Indonesia, Philippines and Thailand. Using sixty-three banks as a case study; found out that the higher the interest rate, the lower the firm value. In addition, dynamics of interest rate fluctuations in the banks' operating environment necessitate the use of sound risk management strategies by financial institutions to boost firm value. Further, Wasiuzzaman and Gunasegavan (2013) investigated the relationship on macroeconomic determinants of banks firm value in Malaysia in the period 2005 to 2008. The study indicated that current economic growth rate and inflation positively influenced the banks firm value.

In Kenya, a study by Ongore (2011)paid attention on what determined the firm value of commercial banks. Their research concentrated more on the influence of commercial bank's ownership structure. In another study by Tsuma and Gichinga (2016), they examined the factors that affect a bank's firm value with their focus on NBK and found out that interest rate, credit risk, inflation and capital adequacy affected firm value. The empirical studies reviewed indicate that studies have been done in the past on how macroeconomic factors affect the firm value of firms by local as well as foreign researchers. However, the studies that focus on the Kenyan context were very scanty. Moreover, the results and findings indicate divergent views as to how the said factors affect the firm value. Macroeconomic factors have no effect on firm value of firms (Kiganda, 2014; San & Heng, 2013); however, Ayako et al. (2015), Ongeri (2014), Simiyu and Ngile (2015) found that macroeconomic

factors affect firm value by firms. The specific macroeconomic factors are also found to have differing effect on firm value measures by different researchers. There is therefore, a lack of consensus as to how macroeconomic factors influence the value of firms, commercial banks included. This study sought to address the glaring gap by seeking to answer the research question: What is the effect of macroeconomic factors on firm value of commercial banks in Kenya?

1.4 Objectives of the study

1.4.1 Main Objective

The purpose of this study was to establish the effect of macroeconomic factors on the firm value of listed commercial banks in Kenya.

1.4.2 Specific Objectives

This research was guided by four specific objectives as follows;

i. To establish the effect of economic growth on firm value of listed commercial banks in Kenya.
ii. To establish the effect of inflation rate on firm value of listed commercial banks in Kenya.
iii. To establish the effect of exchange rate on firm value of listed commercial banks in Kenya.
iv. To establish the effect of interest rate on firm value of listed commercial banks in Kenya.

1.5 Research Hypotheses

The research hypotheses for the study were specified as follows:

H_{01}: Economic growth has no significant effect on firm value of listed commercial banks in Kenya.

H_{02}: Inflation rate has no significant effect on firm value of listed commercial banks in Kenya.

H_{03}: Exchange rate has no significant effect on firm value of listed commercial banks in Kenya

H_{04}: Interest rate has no significant effect on firm value of listed commercial banks in Kenya

1.6 Significance of the Research Study

1.6.1 Government of Kenya

The study is important to Kenya's government as it would help policymakers formulate policies on price stability in financial markets, commercial banks, and other institutions within the financial sector.

1.6.2 The Bank Management

The results of the study would significantly inform the organizational set-up. It would shed light on the way macroeconomic factors affect the firm value of banks. Thirdly, the analysis would educate the general public on how the macroeconomic factors affect the firm value of commercial banks.

1.6.3 Academicians

The analysis would lay the groundwork for academics who would wish to pursue further work in a similar area.

1.7 Scope of the Research Study

The study was limited to assessing how macroeconomic factors affected firm value of commercial banks in Kenya. Listed commercial banks formed the point of focus. Although there are many macroeconomic factors likely to affect firm value of commercial banks, this study only focused on inflation rate, economic growth, interest rate and exchange rate. All the

listed commercial banks in Kenya were targeted in this research study and the secondary data collected covered the period 2008 to 2019.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter discusses and provides the literature that is applicable to this study. The organization of the chapter entails different sections: theoretical review, the link between macroeconomic factors and firm value by banks, empirical review, conceptual framework, and summary.

2.2 Theoretical Review

This encompasses ideas alongside their meanings and which act as a crucial reference point when conducting research and anchors the hypotheses that are specified in a particular study. It is an indication of the understanding of the postulations and ideas considered relevant to a given subject in a research project and are identified with the more general study subject being thought of. Accordingly, with respect to this study, it is an assortment of interrelated articulations or rules that clarifies the significant hypotheses corresponding to the effect of macroeconomic factors on the firm value of listed commercial banks in Kenya.

2.2.1 Shareholder Value Theory

Shareholder value theory was advanced by Friedman (1970). Shareholder value theory is the most prominent economic theory in use by business. It proposes that the main purpose of the business is maximizing shareholder wealth through improving the firm value. The theory strongly argues in favor of maximizing the firm value in order to increase the wealth of shareholders. The firm should be operated in such a way as to cater for the interests of the shareholders. According to Jensen (2001), the management should carry out the operations of revenue, minimizing costs and reducing the risks. Margolis and Walsh (2003) contend that shareholders have primary position over all the other stakeholders, the business with the aim

of increasing the shareholders' value through maximizing the accordingly, the board has a primary duty and responsibility to increase the shareholders' value.

Saint and Tripathi (2006) indicate that the fact that the business exists to maximize the interests of shareholders is so socially incorporated into the financial community that the business community believes it is the truth and therefore, the value maximization motive is propagated in and applied in practice, and is justified through other sources. This theory was utilized in the study to support the value maximization motive which forms the basis of the dependent variable in the current study. It also explained the importance of maximizing the value of commercial banks as a primary goal of any decision undertaken by the management of listed commercial banks in Kenya in relation to responding to the macroeconomic environment.

2.2.2Foreign Exchange Exposure Theory

The early research on foreign exchange exposure goes back to the work of Adler and Dumas (1984), who defined foreign exchange exposure as the effect of unexpected changes in foreign exchange rates on cash flows, by extension, firm value. Contemporary foreign exchange exposure theory according to Shapiro (2003) is that the value of a multinational company should be affected by exchange rate fluctuations through foreign sales and foreign (net) assets, expressed in the domestic currency of the parent company. Despite that, the earliest empirical studies on the topic although focusing on companies with considerable operations abroad, fail to show a significant impact of fluctuations in exchange rates on the stock price of multinational companies (Jorion, 2010). More recent studies by Hill (2004), however, are more consistent with financial theory and find that exchange rate movements, through their effect on sales and net assets values, are an important factor in determining firm value.

Most studies on exposure focus on multinational corporations, whereas Aggerwal and Harper (2010), focus on domestic firms. Perhaps counter intuitively for most managers, they find that domestic firms face significant foreign exchange exposure; on average the exposure is not significantly different from the exposures faced by multinational corporations (Jorion, 2010). Domestic firms are in fact experiencing foreign exchange exposure because of increasing globalization of financial and product markets, domestic firms may face currency risk through interest rates and financial markets and through product markets such as: competitors, suppliers and customers may as well engage in cross-border transactions (Jongen et al., 2006).

The theoretical impact of exchange rate fluctuations on banks depends on the interplay between currency moves and a bank's foreign exchange exposure. Domestic currency depreciation can be expected to hurt banks whose foreign exchange liabilities substantially exceed their assets denominated in foreign currencies. However, Lindgren et al. (1996) identify the effect of exchange rate levels on the performance of banks' borrowers as its primary impact on bank profitability and consequently their value, that is, they attach greater importance to the connection between exchange rate and credit risk than to currency risk as such. On aggregate, domestic currency depreciation is likely to increase credit risk for bank loans extended to importers and decrease credit risk of the exporting sector. Changes in a bank's overall risk position will be determined by its net exposure to exporting or importing corporate borrowers. Exchange rate moves are likely to have a different effect on banks with different kinds of exposure.

The magnitude of exchange rate moves can be a risk source of its own. Excessive exchange rate volatility impairs economic and financial stability in a country and was found to have played a significant role in inducing banking crises in many countries(Lindgren et al., 1996).A sufficiently strong depreciation of a currency can be expected to induce disinter

mediation and increase bank risk as depositors withdraw their money and seek to invest it in "hard" currency assets. This is likely to have an impact on their profitability and in extension, their corporate value. This theory was relevant in guiding the assessment of the impact of exchange rate on firm value of listed commercial banks in Kenya.

2.2.3Theories of Inflation

This study is anchored on the multifaceted theories of inflation (Classical Theories including Quantity Theory of Money, Keynesian Theory, Monetarism, and Structuralism). As regards classical theories, Adam Smith in Gokal and Hanif (2004) argued that growth was self-reinforcing as it exhibited increasing returns to scale. Moreover, he viewed savings as a creator of investment and hence growth. Therefore, he saw income distribution as being one of the most important determinants of how fast (or slow) a nation would grow. He also posited that profits decline not because of decreasing marginal productivity, but rather because the competition of capitalists for workers will bid wages up (cost-push inflation).

Next, the quantity theory of money refers to the identical or equal relationship between national income estimated at market prices and the velocity of circulation of the money supply. Based on this theory, there is a positive relationship between price levels and the money supply. That is, when the money supply increases by a certain percentage the price levels will also increase by an equal percentage. According to this theory, it is believed that inflation is caused by an expansion in the money supply of a given economy.

Contrastingly, Keynesian theory asserted that an increase in general price level or inflation is created by an increase in the aggregate demand which is over and above the increase in aggregate supply. If a given economy is at its full employment output level, an increase in government expenditure, an increase in private consumption and an increase in private investment will create an increase in aggregate demand; leading towards an increase in general price levels (demand-push inflation). Such an inflationary situation is created dueto

the fact that at optimum or full employment of output (maximum utilization of scarce resources) a given economy is unable to increase its output or aggregate supply in response to an increase in aggregate demand(Arato, 2009).

The monetarist's theory implicitly states that when the money supply is increased in order to grow or increase production and employment, it creates an inflationary situation within an economy. A monetarist believes increases in the money supply will only affect or increase production and employment levels in the short run and not in the long run. That is, there will be a positive relationship between inflation levels and money supply. The monetarists explain this relationship using the theory of natural rate of unemployment.

Conversely, the structuralism's theory states that the main reason for inflation is the in-elasticity in the structures of the economy. Originating in Latin America, this theory states that the inflation rates in developing countries are affected by the in-elasticity of the following: production level and capacity, capital formulation, institutional framework, high in-elasticity in the agricultural sector, in-elasticity of the labor force and employment structures. One of the most important objectives of most companies among them banks besides profit maximization is the ascertainment of the firm's real net worth or value. This is only possible if in their operations, inflation element is incorporated when assessing the variables likely to influence their corporate value. This theory informs the study of inflation rate and its impact on the firm value of commercial banks in Kenya.

2.2.4 Keynesian Economic Theory

Keynes (1930) argued on the importance of the economic growth; credit becomes the pavement through which production moves; the bankers as their duty, should provide the transport facilities required so that the productive powers of the community can be employed to their full capacity. Keynes advocated for instant returns in economic theories, policy concern on short -term needs and correction on a nation's economy. The government is the

force behind an end to financial and economic downturns. This is undertaken through provision of prudent monetary and fiscal policies, and providing aggregate demand to increase the level of economic output, facilitated through a stable financial system that can spur continued economic stability. This theory was used to examine the role of government in ensuring that there is favourable economic growth in the nation that can spur economic prosperity and in so doing enhance the performance of firms and ultimately their firm value. The theory therefore, guided the determination of the impact of economic growth on the firm value of listed commercial banks in Kenya.

2.3 Empirical Literature Review

There exists literature on firm value of banks based on the number of countries and types of banks. Shareholder's wealth, growth, dividend payout, ratio and leverage are the widely considered firm value measures by researchers (Adams & Mehran, 2005; Baye et al., 2006; Lee & Chen, 2011; Mancinelli & Ozkan, 2006). This literature has produced mixed findings by researchers. Singh and Sharma (2016) examined the factors that affect firm value of commercial banks in India. The study found that bank-specific variables (size of the bank, value of the firm, adequacy of resources, and deposits) besides cost funding and macroeconomic factors with the exception of unemployment have a major effect on bank liquidity.Ma et al. (2011), examined the U.S. banking sector's firm value between 2000 and 2008. The determinants of firm value comprised both bank specific features and macroeconomic considerations. In explaining the bank profit, they found that the macroeconomic variables among them the rate of growth in an economy and changes in interest rate were significant.

2.3.1 Economic Growth and Firm Value

A study by Gunu and Idris (2009) examined the macroeconomic factors that are responsible to firm value in Nigeria for the period 1980 - 2006 and made a discovery that the rate of

economic growth positively and in a significant manner influenced stock prices where stock prices may serve as important indicators for measuring firm value. In other words, increasing stock prices in general implies an improvement in firm value.

Ibrahim and Aziz (2003), explored the effect of macroeconomics variables on firm value using co-integration and vector auto-regression and found that economic growth had a positively impacted the value of firms. Government policies regarding economic growth should consider this association, which will ultimately contribute to a more stable firm value.Combey and Togbenou (2016), suggested that the real growth of economic growth negatively affect the firm value of the bank. These findings suggested that, in order to maintain banks' firm value and make the banking industry more stable, banking sector policymakers and also managers will, among other things, seek to increase the expectation of economic growth in the gross domestic product.

A study by Rosyadi (2014), studied the influence of inflation, interest, and economic growth on firm value in Indonesia for the period 2008-2012 using linear regression. One measure of firm value is the stock price. Capital-market stock values are unpredictable. Stock price volatility is influenced by a myriad of factors, whether from the banks' internal or external sides. This work examines the supposed external influences that can influence the stock price. External factors can be seen from the macroeconomic perspective. Interest rate, economic growth and inflation are the macroeconomic variables considered in this case. The study found that economic growth has marginal positive impact on firm value. Thus, it is better for banks to be more concerned with changing economic growth when making the decision to perpetuate their firm value.

On the contrary Moeljadi et al. (2020), researched on the determinant of firm value of the 30 listed banks in stock exchange Indonesia for a period 2015 - 2018 and observed a negative effect of GDP on banks firm value. This study meant that banks ought to focus on the factor,

both internally and externally, so as to improve the confidence of investors as mirrored in the prices of stocks. Further, increased share prices that is not matched with increased stock returns ought to be a point of focus from banks and investors.

Ater (2017), investigated the relationship between firm value, firm growth, capital structure and macroeconomic factors using existing literature hypotheses based on gaps established and tested using a population sample of 36 Nairobi Securities Exchange-listed non-financial firms (NSE) in Kenya. The results underlined that the rate of economic growth had a negative association with a firm value. The research also explored extensively the importance of the impact of firm value as intrinsic and aligns with extrinsic factors (macroeconomic factors) that regulate the relation between independent variables and predictors.

Trujillo- Ponce (2013), studied the variables that decide the firm interest of Spanish banks for the period 1999-2009. They concluded that over these years a high proportion of loans in overall reserves, good profitability, a high percentage of consumer deposits and a low questionable asset ratio were associated with the high bank firm value. Beyond that, economic growth had a favorable impact on the bank value.

2.3.2 Inflation Rate and Firm Value

Inflation measures the general percentage change of all goods and services in the consumer price index. Inflation has an effect on the actual revenue and cost value. The relationship existing between the inflation and firm value was demonstrated to be positive or negative based on past literature like the study by Tinoco-Zermeno et al. (2014), inflation rate dynamics often affect the banks' potential to improve firm value, leading to lower private credit and declining financial development, while credit access has a positive impact on gross domestic product growth. The expectations of this analysis is the inverse association between the inflation rate and the firm value.

Previous research on the effect of inflation on company value according to (Mgammal,2012) stated that inflation has a negative and significant effect on company value supported by (Kitati et al.,2015) found that inflation has a negative and no significant effect on firm value. While the result of the research conducted by (Ifeanyi and Chukwuma, 2016)indicated that the relationship between inflation and profitability had a non-significant negative effect on firm value. But according to (Al-Sharkas, 2016), and (Jubaedah et al.,2016), stated that inflation has a positive and significant effect on firm value.

Wamucii (2010) analyzed the connection that existed between inflation rates and the firm value of Kenyan commercial banks covering a timeframe of 10 years. The analysis of the data involved regressing inflation rates against the firm value of the banks for the mentioned time period. The results demonstrated that the relationship that existed between inflation rates and the banks' firm value was inverse. It was observed in this study that increased inflation resulted to a dip in the profitability of the banks over this period. Nevertheless, it was not clear from this study how the level of inflation influenced profitability given that other factors existed, for instance, the adverse effect of inflation that was unfavourable for investments and savings influenced the growth observed in a company and its value.

The study on the effect of interest and inflation on exchange rates was done for the period between 2007 and 2012 by Okoth (2013). The research unearthed that the exchange rates were greatly impacted by increases in the inflation levels and interest rates. The study proved the likelihood that increased interest and inflation rates would translate to increased exchange rates that were an indication of currency depreciation. The study however, did not demonstrate how inflation rates impacts the profit levels of firms notwithstanding its influence on the exchange rate, currency values and revenues emanating from the trading of foreign currencies.

The study by Vena (2014) concentrated on the influence that inflation had on the stock market returns of firms that had been listed on at the NSE. Noting that inflation was a key challenge that faced the Kenyan economy, the study underlined that an increase in inflation was accompanied by equivalent increase in the CPI as a result of increasing interest rates that result to a dip share prices of firms that have been listed. Given that the general objective of a firm is maximizing its shareholders' wealth, when its share prices dip, there is a resultant shrinking of the returns of the firm. This research was embarked on for the period 1998 to 2013 where a GARCH model was utilized to demonstrate the impact that inflation had on the value of firms. The results underlined that inflation adversely affects the profit levels and came to a conclusion that returns from stocks are little when higher levels of inflation are recorded as investments are shifted from the securities market into other business undertakings that are not likely to be impacted by inflation. This past research did not provide a clear demonstration of the impact that inflation has on the returns from stocks and their volatility, which in the end affect companies' value.

The study by Wanjohi (2003) explored the micro and macroeconomic variables affecting the profitability levels of commercial banks in Kenya. The purpose of conducing the survey was to establish the reasons as to why a number of banks seemed to have attained much success when compared to others given that profit levels were among the indicators of the value of a firm. Inflation was also recognized as a key factor that determined how a firm was value as it impacted the firm's costs as well as the revenues generated from its operations.

2.3.3 Exchange Rate and Firm Value

Different currencies are involved in international trade; foreign exchange rate volatility is a theoretically crucial factor affecting the firm value of commercial banks, since it influences process of acting as financial intermediaries (Chiira, 2009). As there is no self-reliant country, but they do business with each other, it is helpful to have foreign exchange rates.

Hodrick (1990), showed that the effect of foreign exchange volatility on the capital market could result from the fact that banks in developing countries are dependent on imports, resulting in a negative impact on the economy as a whole.

Atindéhou and Gueyie (2001), based on Canadian banks and their exchange rate risk exposure over a seven-year period from 1988 to 1995 by calculating the three-factor asset pricing mechanism (market value, interest rate and exchange rate). Their results showed Canadian bank stock returns were prone to volatility in foreign currency. Furthermore, an asymmetric reaction to risks related to exchange rates exist. Investors are responding readily to a reassessment of their portfolios once losses occur when compared to improvements after continuous gains.

Wong et al. (2009), looked at Chinese banks' foreign exchange exposure. The analysis used a subset of the 14 banks that were mentioned. The study showed a concrete correlation between the size of a bank and foreign-exchange exposure. The analysis also showed that foreign exchange appreciation minimizes asset prices while impeding the firm valuation of the bank.Kasman et al. (2011), analyzed Turkish banking firms using the OLS and GARCH prediction models and the findings revealed that the exchange rate adversely affected the value of a company. Further, Opaluwa et al. (2010), studied the impacts of the variations in the exchange rates on manufacturing firms in Nigeria for a period from 1986 – 2005 using regression and established that the rise and fall in exchange rates were significantly correlated with the value of firms in this industry. The study found that variations in the exchange rate had a detrimental impact on manufacturing sector production.

Taiwo and Adesola (2013), studied the impact of instability in exchange rates on Nigerian commercial banks. The analysis concluded that exchange-rate variations have a beneficial impact on borrowers' ability to finance loans. The analysis also noticed anin significant correlation between the exchange rate and the amount of capital deposits.Adetayo et al.

(2004), investigated the effect on commercial banks in Nigeria of foreign-exchange threats. The sample population consisted of all commercial banks based in Lagos. Data were collected primarily by means of structured questionnaires. The study showed that spot bargain was successful in mitigating foreign exchange risks.

Lado (2015), looked at the connection between South Sudan's foreign exchange rate and inflation. The goal of this research was to determine the impact of exchange rate and inflation determined by consumer price indexes in South Sudan using monthly time series data for the duration from August 2011 to November 2014 using the Granger causality method. The analysis showed that the exchange rate did not trigger a consumer price indexes. The analysis concluded that currency depreciation has a detrimental impact on firm value.

Ebaidalla (2014), looked at the effect of actual exchange rate distortion on Sudan's economic development. The study used a GARCH model to measure exchange rate volatility covers the time from 1979 to 2009.The study revealed that exchange rate of equilibrium is significantly affected by economic policy. The study concluded that the volatility of the exchange rate has a detrimental impact on the firm's value and flow of foreign direct investment into Sudan.

Cherop (2010), analyzed the impact of fluctuating exchange rates on tea export revenues across Kenya's smallholder tea factories, revealing that exchange rate volatility had a major impact on tea factory earnings. At the time of local currency devaluation, export earnings with small volumes of export were even higher while the export earnings dropped when the currency appreciated. This analysis concentrated on the tea export earnings and ignored the much greater portion of the companies quoted on the Nairobi stock exchange.

Maina (2010), investigated the effect of exchange rates fluctuations on investments in Kenya's electricity subsector. The analysis showed that the power subsector expenditures were strong while the exchange rates were steady relative to periods of high fluctuations.

Changes in exchange rates can lead to increased uncertainty about operating income and uncertainty about investment levels. Foreign exchange rate changes have the potential to weaken the company's competitive position and destroy earnings. The level of firm value and overall investment decisions taken by companies in the Kenyan Power sub-sector are significantly impacted by fluctuations in foreign exchange.

Ambunya (2012) examined the interaction between currency variations and stock market price returns in the Nairobi stock exchange. The study population consist of fifty-six listed companies. Secondary data for the period 2007-2011 was collected. The analysis showed that variations in the exchange rates had a positive impact on stock market performance. The study revealed that variations in the exchange rate and the volatility of the returns on the stock market are strongly linked.

Gachua (2011), examined foreign currency exposure effect on the firm value of a company. They used a sample size of 38. The analysis showed that exchange rates had a major impact on imports and exports. The analysis found that unrealized gains / losses from foreign exchange adversely impact Net Profits.Sikarwar (2018) conducted a research to explore the role played by exchange-rate exposure and its connection to currency derivatives utilization within the intricate context of the financial crisis that was experienced globally in 2008. Through the use of a sample that comprised of 624 companies from India over the 2001-2016 period, this study examined the linear and asymmetric exposure by dividing the entire length of the study into separate sub-periods throughout the crisis. The results that were obtained in this research suggested that the companies were highly susceptible to exchange rate adjustment since the right from the commencement of the financial crunch. Nevertheless, evidence was not available to show that the use of currency derivatives is much more efficient in minimizing the exposure throughout crisis or even the period after the crisis compared with the period before the crisis. Over the period of external disruptions such as

recession, the findings are necessary for managers and investors to develop a deeper understanding of company activities around their risk management policies.

The study by Pangestuti and Louisa (2020) on the impact of internal and external factors on firm value found that exchange rates negatively and in a significant manner impacted the value of firms for the reason that once the domestic currency's value decreases, the public resort to witching to purchasing US dollars so the capital market would have no power since the returns from purchasing foreign currency yielded higher returns when paralleled to purchase and sell of shares. This would affect the value of listed companies. The study by Simakova (2017) also noted a negative link between exchange rate and value of listed firms suggesting that the negative effect of uncertainties regarding the changes in the exchange rate affected cash flows and the profit levels of firms and thus, their firm values. However, earlier studies by Bartov and Bodnar (1994) and Jorion (1990) indicated that foreign exchange movements did not affect firm value.

2.3.4 Interest Rate and Firm Value

The interest rate which is calculated after inflation adjustment is called the real interest rate. This can be denoted by the Fisher equation that characterizes the real interest rate as the nominal interest rate less the rate of inflation. Under a low interest rate environment, businesses will increase their firm value by lowering interest expenses. Nevertheless, in an increasing interest rate environment, the firm's value is lowered as interest costs increase. Berk et al. (2009), observed that the estimation by the cash flow discounting model of a firm's intrinsic value has a double effect. Cash flows are decreasing due to lower profitability and a higher discount rate because of higher interest rate regime. This results in a comparatively lower firm value.

The study by Ebenezer et al. (2019)study discusses issues in ASEAN-5 countries related to interest-rate impact on firm value among banks. Based on data from 63 commercial banks

over the period 2009 to 2017, the panel data estimation technique was used in the analysis, representing up to 567 observations. The analytical studies showed that interest rate exposure has a major negative impact on firm value for ASEAN banks. But this only focused on one element in firm value and leaving out other factors. Additionally, the complexities of interest rate volatility in the business climate of banks demand that financial firms use effective risk control techniques to improve firm value.

The interest rate impact on the value of the firm in a broad and varied way. The general effect when it is increased is to lower the amount of money in circulation which helps to keep inflation small. This also makes borrowing money more costly, which changes how customers and firms spend their money; raises business spending, reduces profits for those with debt to pay; and, ultimately, makes the stock market a somewhat less desirable place to invest (Saunders & Schumacher, 2000).

Further, the study of Musa (2011)looks at the connection between interest rates and commercial bank financial gains in Kenya using regression analysis. The results and study suggest that interest rates had an impact on the banks' firm value. The study sought to determine the relation between interest rates and return on equity. The findings obtained from the regression model indicate that a favorable relationship exists in Kenya between interest rates and commercial banks ' financial efficiency. Therefore, banks should handle their interest rates wisely, in order to increase their firm value.

Maposa and Muma (2017), investigated the relationship between Zimbabwe's financial development bank and stock market. Using data that was collected for the period 2005 to 2013, the research exploited a VECM for the variables requiring short-run controls. This provided the leeway to apply VAR which would help in preventing incorrect regression estimation since interest rates appeared to possess considerable impacts on economic development in the long run. This meant that the banking sector performed well compared to

the capital markets in the event where there was a positive linkage that existed between interest rates and the firm value of banks. The results indicated a favorable link, both in the short and long term, between successful stock market and the development in an economy. Interest rates was noted to have a negative impact when market capitalization has a positive influence on banks' firm value.

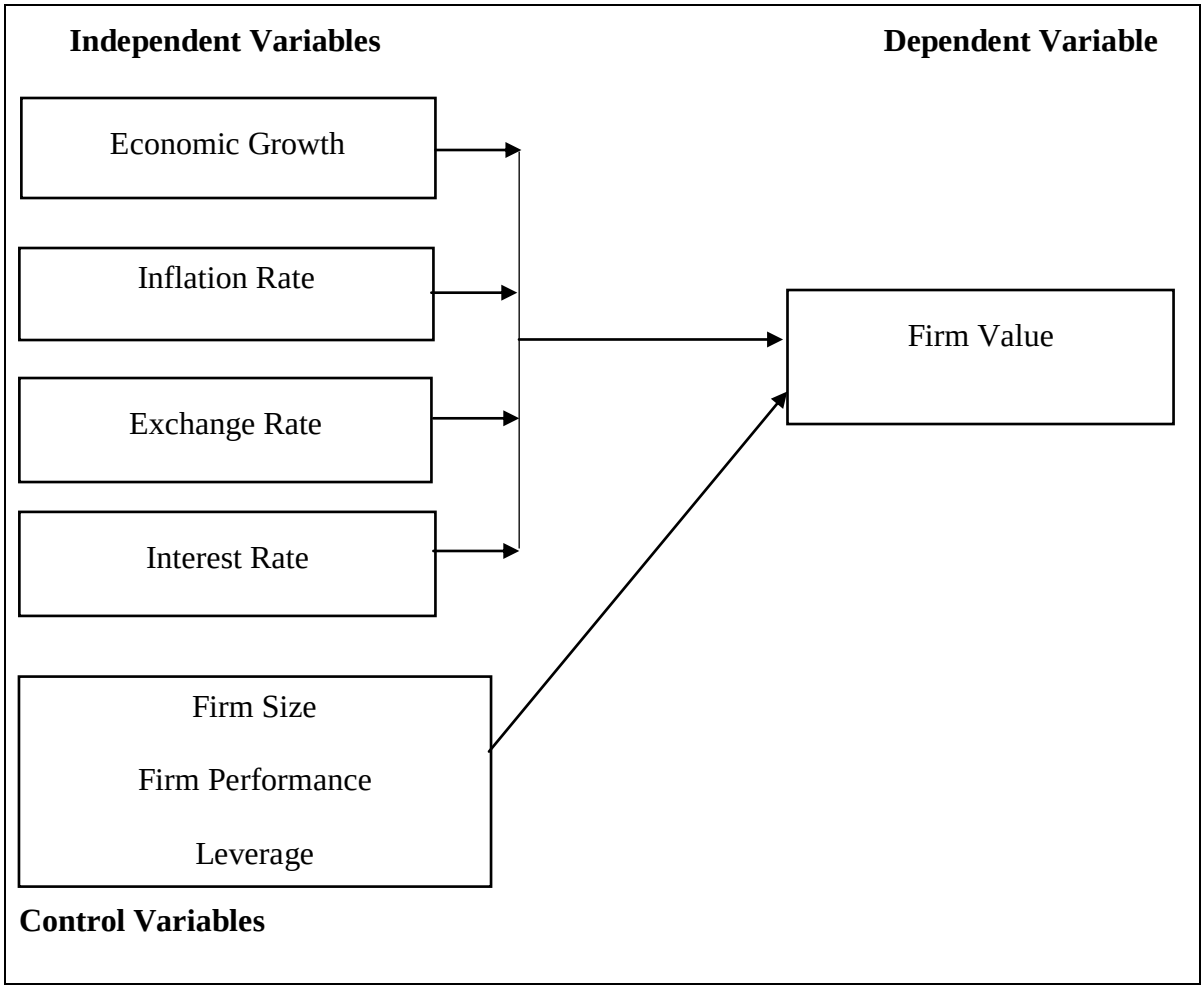
A study by Cheng and Tzeng (2011)made a discovery that when the interest rates charged by banks were lowered, they resulted in lowering the capital costs and increasing firm value while studying the effects of leverage on firm value and contextual variables on listed companies in Taiwan Security Exchange (TSE). The beneficial effect of leverage to firm value appears to be greater when the efficiency of the firm's finance is higher. This result will provide insight into the decision to fund the firm's debt to optimize the banks firm value.

Odalo et al. (2016),it was concluded that interest rates have a strong and important impact on the firm value, which is why interest rates are a successful indicator of firm value, when researching the effect of interest rates on the financial development of NSE-listed agricultural firms. However, the results from the relationship between the independent variables and the interest rate showed that the interest rate reduces the impact of the firm value of the Nairobi Securities Exchange listed agricultural firms. The report also proposed that the Central Bank should impose strict limits on interest rates paid by financial institutions to control their dissemination of interest rates.

Kitati et al. (2015)observed that the interest rate had a leading impact on financial market price indices along with other macroeconomic indicators. In the case of firms quoted at the NSE, exchange rate and interest rate on both US dollar and Euro had a negative impact on stock market indices. By depreciating the Kenya shilling, the indices in the stock market gain in points. Such exchange rates should be controlled by the government and kept at the level required.

2.4 Conceptual Framework of the Study

According to Menike (2006), studies done show that various macroeconomic factors can and do affect firm value of firms. Since all the macroeconomic factors can be looked at, it is imperative that they be narrowed down to those that are relevant to the banking sector. Noting the above and contrasting theoretical theories with previous evidence, four factors were chosen, namely inflation rate, exchange rate, economic growth and interest rate.



Source: Researcher (2020)

Figure 1.1: Conceptual Framework of the Study

2.4.1 Measurement of Dependent Variable

This study employed the Tobin Q to evaluate firm value which generally measured the connection existing between the value of a firms' stocks and the costs of replacing the

resources of the firm (Tobin, 1969). Therefore, a positive relationship must exist between the Tobin's q ratio and potential firm value for the ratio to be a reliable proxy for investment prospects for a bank (Alkhatib & Harasheh, 2012). According to Salehi (2002), if the ratio exceeds 1, this means that investment in assets contributes more to earnings than expenditure on resources. On the other hand, if the Tobin's Q value is below 1, this implies that investing in assets is rejected. Tobin's Q which is a tool for promoting investment research, was majorly applied in simplifying investment analyses and was an indicator of the manner in which gainful investment can be undertaken (Tobin, 1969).The corporation has some leverage over intangible assets when the firm value is more than one so if it is below one, the corporation needs to spend more than it gets. One interest indicates that the organization makes neither a profit nor a loss.

2.4.2 Measurement of Independent Factors

The analysts use the external variables in terms of the macroeconomic situation that are beyond the influence or uncontrollable by the bank or management of the business. External determinants are factors that are not linked to the management of the bank but are a reflection of the conditions both economic and legal, that influence the operations and firm value of financial institutionsAthanasoglou et al. (2008). There are so many external determinants, but this study focused on economic growth, inflation, exchange rate and interest rate that would have an influence on the firm value of the banks. Commercial banks would develop operational plans to respond to changes in these macroeconomic factors (Flamini et al., 2009).

Economic growth is an indicator of a fiscal year's level of economic activities. It can be specified as the value added and taxes not included in the value of the goods by all residents of the economy (World Development Indicators, 2012). In this study, Kenya's annual percentage of gross domestic product growth for the period 2009-2019 was determined.

The consumer price index was adopted to represent the annual rate of inflation. Inflation affects both the earnings and costs. It also influences essential variables, such as assets prices and labor costs (Garza-Garcia, 2011). The exchange rate is decided by national authorities or the rate established in the lawfully approved currency market (World development indicators, 2012). This analysis used the weighted annual US dollar to exchange rate of Kenya shillings.

The interest rate which is calculated after inflation adjustment is considered the real interest rate. Obillo (2014), stressed that when interest rates rise or decrease, it affects the firm value of commercial banks by changing revenues. The 91-day Treasury bill rate was used in this study.

2.5 Operationalization of Factors

Operational variables (or meanings of operationalization) apply to how to describe and quantify particular variable that was included in this analysis as described in Table 2.1.

Table 2.1: Operationalization of Factors

VARIABLE	**MEASUREMENT**
Dependent variable	
Firm value	$\text{Tobin's Q Ratio} = \frac{\text{Total Market Value of Bank}}{\text{Total Asset Value of Bank}}$
Independent variable	
Economic Growth	Annual % GDP growth rate
Inflation Rate	Average annual inflation rate
Exchange Rate	Average annual exchange rate (USD/KES)
Interest Rate	91-day Treasury bill rate

Control Variable	
Firm Size	Natural log of Total Assets
Firm performance	ROA
Firm leverage	Debt equity ratio

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter highlights the research design, study population, sampling, data collection, processing, and analysis.

3.2 Research Design

According to Hair et al. (2006), a study design should have pertinent knowledge that answers the research issues more easily and effectively. This study aimed at examining the effect of macroeconomic factors on the firm value of the Kenyan listed commercial banks. This study used a descriptive design for the research. A descriptive analysis is typically organized and configured to test precisely the features defined in the study questions. Furthermore, a descriptive analysis attempts to provide a precise and reliable description of the factors or variables important to the study(Hair et al., 2006).

3.3 Population of the Study

The population of the study consisted of the all classified commercial banks at Nairobi Securities Exchange over a12-year period from 2008 through to 2019. The BK Group PLC was excluded from the detailed analysis because it was only cross-listed and did not operate in Kenya. NCBA was also excluded since it was formed after a merger between NIC and CBA in 2019 and hence, obtaining data over the study period posed a challenge. I&M holdings was also excluded since the bank was listed in 2013 and hence, there was no data for about 5 years. Therefore, the target population comprised of the remaining 9listed commercial banks. The listed banks were deemed suitable for this study because of the authenticity and credibility of such data. For a list of the population of the sample, see Appendix I.

3.4 Sample and Sampling Design

A sample is taken from the population using the design or method of sampling; which can be simple and convenient or complex based on random numbers (Kothari, 2004). All the listed commercial banks were selected using census sampling technique. Census sampling method is the method of statistical enumeration where all members of the population are studied. Hence, 9 listed commercial banks formed the sample for this study.

3.5 Data Collection

The foundation of the study was secondary data pertaining to listed commercial banks at the NSE .In gathering the data used, a secondary data collection form displayed in Appendix II was utilized. The main sources for the data pertaining to the macro economic factors was the Kenya National Statistics Bureau (KNBS) and CBK. Secondary data on firm value was derived from different documents such as individual banks' financial statements, annual reports as well as the NSE Handbook Manuals. The data covered a duration of 12 years from 2008 to 2019.

3.6 Data Processing and Analysis

In its estimation, this study used the panel data analysis which is generally an approach to data analysis that ensures that the time series and cross-sectional aspects in a given dataset is taken into account. The Stata software was used to aid in analyzing data for the study. Panel multiple regression was used to evaluate the relationship between macroeconomic variables and firm value of the listed commercial banks while correlation was used to determine the intensity and existence of the association between the macroeconomic factors and firm value of the banks.

3.6.1 Analytical Model

The analysis used the panel multiple regression model of either a fixed or random effects, that was formulated as follows;

$$Y_{it} = \beta_0 + \beta_1 x_{1it} + \beta_2 x_{2it} + \beta_3 x_{3it} + \beta_4 x_{4it} + \beta_5 x_{5it} + \beta_6 x_{6it} + \beta_7 x_{7it} + \varepsilon_{it} \; where;$$

Y_{it} = **Value of firm** i at time t will be measured using for all the selected commercial banks in Kenya

X_{1it} =**Economic growth,** i at time t will be measured using the gross domestic product (GDP)

X_{2it} =**Interest rates,** i at time t will be measured using average lending rates by commercial banks in Kenya

X_{3it} = **Exchange rate,** i at time t will be measured using average Kenya shilling per unit of US dollar

X_{4it} = **Inflation rate,** i at time t will be measured using consumer price index

X_{5it} = **Firm size,** i at the time t will be measured using log of total assets

X_{6it} = **Firm performance,** i at the time t will be measured using return on assets ratio (net income divided by total assets)

X_{7it} = **Firm leverage,** i at the time will be measured using debt equity ratio

ε_{it} = Error term

β_0 = Intercept of the regression model

$\beta_1 - \beta_4$ = Coefficients of the regression model

The empirical results were presented using tables and charts.

3.7 Diagnostic tests

3.7.1 Normality Test

The normality assumption that the distribution of the test is normally distributed is essential when conducting joint or single hypothesis tests regarding the parameters of in a model (Brooks, 2008). Normality tests basically assess whether a data set is well represented by a normal distribution and how likely it is to be normally distributed to a random variable underlying the data set (Schmidt& Finan, 2018).A Skewness-Kurtosis test was used to ascertain the assumption. The null hypothesis was specified as follows; the distribution of the data was not significantly different from that of a normal distribution. If the p-value obtained was below 0.05, the null hypothesis of normal distribution would be rejected at the 0.05 level of significance and vice versa.

3.7.2 Multicollinearity Test

Multicollinearity refers to a situation in which there is a strong association can be observed the predictor variables in a given study(Gujarati, 2012).When multicollinearity exists in the dataset, the ability of the researcher to predict the influence that each individual predictor variable has on the dependent variable is reduced. The main assumption in this test is that the independent variables are not highly correlated with each other. Multicollinearity was checked using Variance Inflation Factor (VIF). When there is no collinearity for two independent factors the VIF is 1. As the variance of an estimator increases, also collinearity increases. As a rule of thumb, a VIF value greater than 5 shows the presence of multicollinearity in the data (Gujarati, 2009).

3.7.3 Heteroscedasticity Test

Heteroscedasticity is a condition that arises when the error term variance is not constant(Majid, Aslam, & Altaf, 2018).The assumption is that is that the errors have the same but unknown variance.When the data suffers from the heteroscedasticity problem, the model

may be overestimated since it interferes with the predictive power of the independent variables leading to incorrect conclusions. Heteroskedasticity of error terms was checked using the Modified Wald Test. If the probability was higher than the significance level (0.05), the null hypothesis would be accepted meaning that the variance of error term was the same that is, the regression model was homoskedastic and therefore better explained the relationship between the variables(Gujarati, 2009).

3.7.4 Autocorrelation Test

The autocorrelation test is normally conducted in order to determine if there is correlation among the residuals over time (Massidda& Etzo, 2012). The assumption here is that there is little or no autocorrelation in the data.Failing to account and identify autocorrelation leads to standard errors are biased as well as parameter estimates that are considered inefficient (Baltagi, Song, Jung, & Koh, 2007). In detecting the existence of autocorrelation, the Wooldridge F- statistic test will be conducted. In this respect, the null hypothesis is that the data has no autocorrelation.A p value of less than 0.05 indicates presence of autocorrelation (Wooldridge, 2002).

3.7.5Hausman Test

In determination of the appropriateness of a random or fixed effects model, the Hausman test was undertaken. This test assesses the consistency of an estimator when compared to an alternative's less efficient estimator which is already known to be consistent. Hausman test was used to determine if the unique errors in the study are significantly associated with the independent variables and the null hypothesis shows that they are not. The Hausman test can be used to determine whether to utilize fixed or random effects in the analysis. If Prob>chi 2 is less than the 0.05, the null hypothesis is rejected and fixed effects model used (Greene, 2008).

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter contains the study results obtained, their interpretation and also how they compare with that of other studies. The analysis and presentation of the findings is guided by the specific objectives of the study. Descriptive statistics comprising of the mean, minimum, maximum and the standard deviation were computed for all variables so that a description of the basic features of the data used and simple summaries on the sample and the measures could be provided. On the other hand, inferential analysis entailed correlation analysis and regression analysis. Correlation analysis was used to determine the nature of association between the independent variables and the dependent variable while regression analysis helped in quantifying the effect that each independent variable had on the dependent variable.Various diagnostic tests and trend analysis were also conducted.

4.2 Descriptive Statistics

The results presented in Table 4.1 provides the descriptive statistics for the macroeconomic factors explored in this study. The average economic growth for the nation as measured by annual percentage GDP growth rate for period 2008 to 2019 was 5.17% with a standard deviation of 1.89%. Given that the standard deviation was lower than the average annual percentage GDP growth rate, it was concluded that the data points for this variable were closely clustered around the mean. The minimum annual percentage GDP growth rate for the period was 0.20% while the maximum was 8.40%.

As it pertains to the inflation rate, the average annual average inflation rate for the period 2008 to 2019 was 8.01% with a standard deviation of 3.09% which was lower than the mean implying that the data points for annual average inflation for the study period were closely

clustered around the mean. The minimum annual average inflation rate for the period under study was 5.04% while the maximum was 14.28%. The descriptive statistics for exchange rate as measured by the annual average exchange rate of Kenyan Shilling against the US dollar are also provided. It was established that the Kenyan shilling exchanged to US dollar at an average rate of 89.94 over the study period (2008 to 2019) with a standard deviation of 11.03 which was an indication that the data points for exchange rate for the period under study were closely clustered round the mean. The maximum exchange rate USD/KSH for the study period was 103.41 while the minimum was 69.19.

The findings obtained with respect to interest rate measured in terms of the 91-day Treasury bill rate revealed that the average 91-day Treasury bill rate for the period 2008 to 2019 was 8.38% where the maximum rate was 3.60% and the maximum rate was 12.76%. The standard deviation was 2.12%, lower than the average rate which implied that the data points for 91-day Treasury bill rate over the study period were closely clustered around the mean.

Table 4.1: Descriptive Statistics for Macroeconomic Factors

. sum(economic growth inflation rate exchange rate interest rate)

Variable	Obs	Mean	Std. Dev.	Min	Max
Economic growth (%)	108	5.17	1.894853	0.20	8.40
Inflation rate (%)	108	8.01	3.095526	5.04	14.28
Exchange rateUSD/KSH	108	89.94	11.03288	69.19	103.41
Interest rate (%)	108	8.38	2.116519	3.60	12.76

Source: Research Data (2020)

The descriptive statistics on Tobin's q, firm leverage, firm performance and firm size are presented in Table 4.2 since comparisons were made within and between the banks considered in this study. The results show that the average firm value of the listed

commercial banks in Kenya as measured by Tobin's q for the period 2008 to 2019 was 1.380 where the minimum Tobin's q among these banks was 0.069 while the maximum was 3.784.The standard deviation obtained was 0.944 which was relatively lower compared to the mean indicating that the data points for Tobin's for these banks were closely clustered around the mean. The variance in the Tobin's qfor these banks was higher between the banks (0.752) compared to within the same bank over the study period (0.619).

The findings also show that the average firm leverage among the listed commercial banks under study as measured by the debt equity ratio for the period 2008 to 2019 was 5.767 where the minimum debt equity ratio for the period was 2.914 and the maximum was 15.602. Overall, the standard deviation was 2.019 and given that it was lower than the average debt equity ratio for these banks, it was concluded that the data points for the firm leverage (debt/equity ratio) were closely clustered around the mean. The findings also showed that the variation in debt equity ratio between the banks (1.306) was lower than within the same bank over the study period as shown by a standard deviation of 1.596.

The firm performance of the listed commercial banks measured using return on assets was also explored. It was noted that for the period 2008 to 2019, the average ROA for these banks was 0.027 where the minimum ROA was -0.010 while the maximum was 0.062. The overall standard deviation was 0.014 and given that it was lower than the mean, it was inferred that the data points for ROA of these banks over the study period were closely clustered around the mean. It was further established that the variance in the ROA of the banks was higher between the banks given a standard deviation of 0.011 than within the same bank over the study period as demonstrated by a standard deviation of 0.008.

In this study, the proxy for firm size was the natural logarithm of the banks' total assets. The average ln total assets of the banks for the period 2008 to 2019 was 25.848 where the minimum was 23.383 while the maximum value was 27.524. The overall standard deviation

for the banks was 0.799 and which was lower than the mean an indication that the data points for the in total assets of the banks over the study period were closely clustered around the mean. The variability of the in total assets between the banks was higher given a standard deviation of 0.682 than within the same bank over the period under study as supported by a standard deviation of 0.471.

Table 4.2:Descriptive Statistics for Firm Value and Control Variables

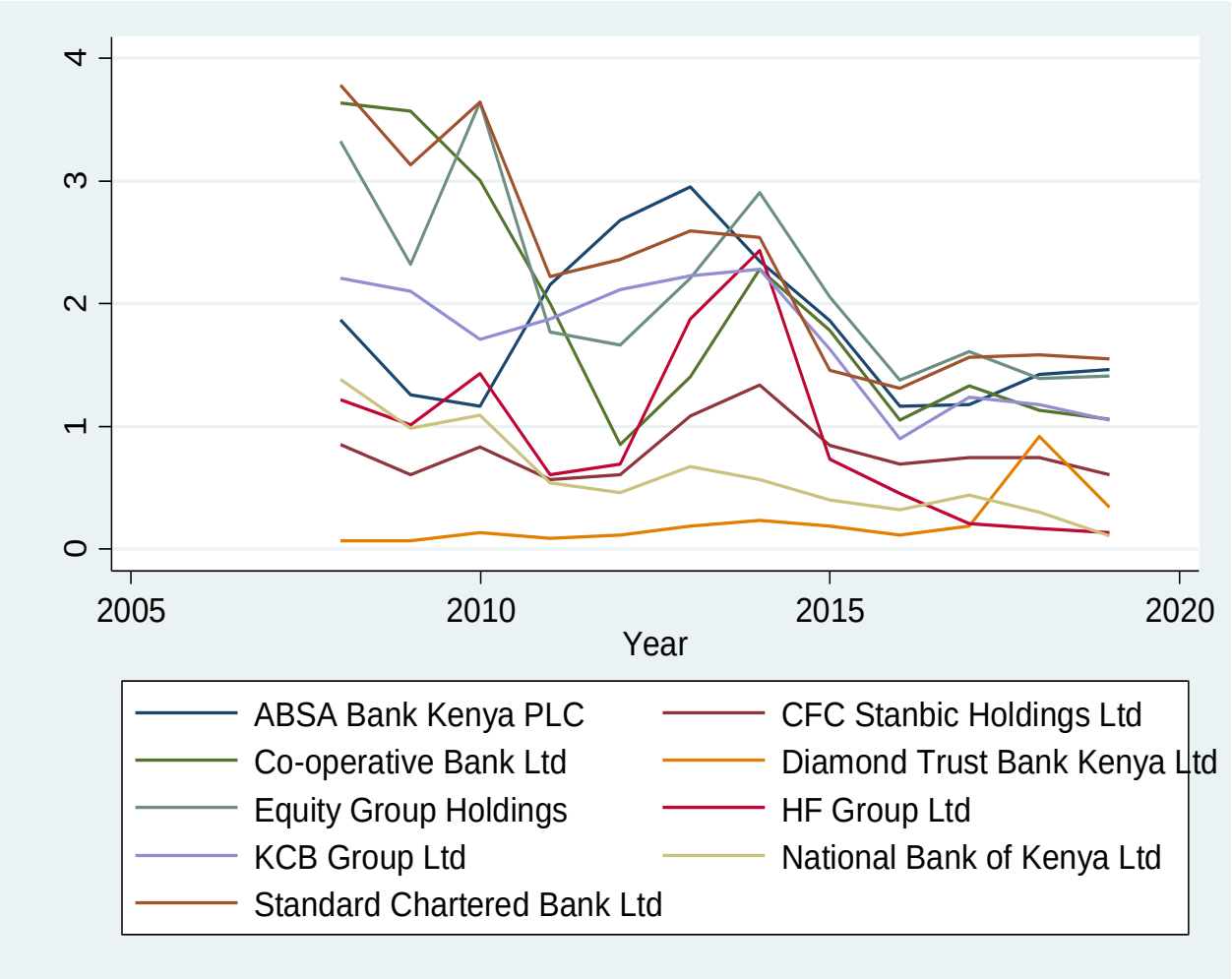
. xtsum (tobin_q firm_leverage firm_performance firm_size)						
Variable		**Mean**	**Std. Dev.**	**Min**	**Max**	**Observations**
Tobin q	Overall	1.380	0.944	0.069	3.784	N=108
	Between		0.752	0.222	2.312	n=9
	Within		0.619	0.309	3.093	T=12
Firm leverage (Debt equity ratio)	Overall	5.767	2.019	2.914	15.602	N=108
	Between		1.306	4.440	8.934	n=9
	Within		1.596	1.879	12.436	T=12
Firm performance (ROA)	Overall	0.027	0.014	-0.010	0.062	N=108
	Between		0.011	0.011	0.044	n=9
	Within		0.008	0.006	0.053	T=12
Firm size(ln oftotal assets)	Overall	25.848	0.799	23.383	27.524	N=108
	Between		0.682	24.472	26.763	n=9
	Within		0.471	24.588	26.733	T=12

Source: Research Data (2020)

4.3 Overlay Graph for Tobin q

Figure 4.1 is a graphic presentation of the Tobin's q across the listed commercial banks considered in this study for the period 2008 to 2019. The line plot provided is an overlay of each bank's Tobin's q trend over the study period. The plot presented an overall illustration of the behaviour of Tobin's q across the banks; it showed a probable varied nature of the listed commercial banks in Kenya. From this graph, a deduction can be made that each and every commercial bank considered in this research had a unique intercept and that the slopes were considerably differed from each other. It can also be observed that there were variations

in the firm value of the listed commercial banks under study as measured by Tobin's q over the study period.



Source: Research Data (2020)

4.4 Correlation Analysis

Correlation analysis was undertaken so that the nature of the association between the predictor and control variables and the dependent variable could be determined. The strength, direction and significance of the correlation variables were examined. The correlation results are given in Table 4.3. It was established that there was a moderate positive and significant correlation between economic growth and firm value of the listed commercial banks under study as shown by ($r=0.4720$*). Conversely, the correlation between inflation rate, exchange

rate and interest rate and the firm value of the banks was found to be negative and significant as illustrated by (*r=-0.4665**), (*r=-0.4276**) and (*r=-0.3219**) respectively. However, while the correlation between inflation rate and exchange rate and firm value of the banks was moderate, the correlation between interest rate and firm value of the commercial banks considered was weak. The correlation results also revealed that firm leverage and the firm value of the banks under study were positively and significantly correlated and that this correlation was moderate given (*r= 0.4825**). Similarly, firm performance and firm size were found to be positively and significantly correlated with the firm value of listed commercial banks considered in this study as supported by (*r=0.6012**) and (*r=0.4186**). The correlation between firm performance and firm value was found to be strong while that of firm size and firm value was moderate.

Table 4.3: Correlation Matrix

. pwcorr tobin_q economic_growth inflation_rate exchange_rate interest_rate firm_leverage firm_performance firm_size, star (0.05)

	Tobin's q	**Economic growth**	**Inflation rate**	**Exchange rate**	**Interest rate**	**Firm leverage**	**Firm performance**	**Firm size**
Tobin's q	1							
Economic growth	0.4720*	1						
Inflation rate	-0.4665*	-0.4378*	1					
Exchange rate	-0.4276*	0.0056	-0.1202	1				
Interest rate	-0.3219*	-0.3306*	0.2811*	0.3085*	1			
Firm leverage	0.4825*	0.3112*	-0.2957*	-0.2591*	-0.2362*	1		
Firm performance	0.6012*	0.3203*	-0.3081*	-0.2609*	-0.0405	0.2759*	1	
Firm size	0.4186*	0.2690*	-0.3422*	0.2272*	0.0332	0.1453	0.4068*	1.0000

Source: Research Data (2020)

4.5 Diagnostic Tests

In order to ensure that the model fitted in the study was properly specified, various diagnostic tests were conducted.

4.5.1 Normality Test

To check whether the data used was normally distributed, the normality of residuals was tested. To obtain these residuals, a regression analysis was conducted after which the residuals were predicted. The null hypothesis was specified as follows; the distribution of the data was not significantly different from that of a normal distribution. Given that the value of Prob>chi2 (0.9676)as shown in Table 4.4 was greater than 0.05,the null hypothesis was rejected and an inference made that the data used in this study was normally distributed.

Table 4.4: Normality Test Results

. sktest r

SkewnessandKurtosistestsforNormality

		------ joint ------			
Variable	**Obs**	**Pr(Skewness)**	**Pr(Kurtosis)**	**adj chi2(2)**	**Prob>chi2**
R	108	0.9191	0.8137	0.07	0.9676

Source: Research Data (2020)

4.5.2 Multicollinearity Test

This test was conducted in order to determine whether there was strong correlation between the predictor variables which might make it difficult to precisely determine the impact that each individual independent variable had on the firm value of the listed commercial banks under study. The Variance Inflation Factor (VIF) was employed in this case and the results are provided in Table 4.5. The results show that there was no problem of multicollinearity in the data collected since the VIF values for all the independent and control variables were less than 5 based on the interpretation criteria provided by Gujarati (2012). The VIF values for

exchange rate, inflation rate, firm size, firm performance, interest rate, economic growth and firm leverage were 3.55, 2.58, 2.31, 2.11, 1.85, 1.84 and 1.20 respectively.

Table 4.5: Multicollinearity Test Results

. vif		
Variable	**VIF**	**1/VIF(Tolerance)**
Exchange rate	3.55	0.281753
Inflation rate	2.58	0.387869
Firm size	2.31	0.432050
Firm performance	2.11	0.474763
Interest rate	1.85	0.541515
Economic growth	1.84	0.544256
Firm leverage	1.20	0.830698
Mean VIF	**2.21**	

Source: Research Data (2020)

4.5.3 Heteroscedasticity Test

This test was carried out in order to establish whether error terms were correlated across observations of the panel data gathered. When heteroscedasticity was present in the data, biased standard errors of the estimates were obtained and this translated to t and F statistics that were not accurate ultimately affecting the accuracy of inferences made. The Modified Wald test was performed where the null hypothesis was specified as follows; the data does not suffer from heteroskedasticity. Given that Prob>chi2 =0.2378 was greater than 0.05, the null hypothesis was not rejected and hence, it was deduced that the data did not suffer from heteroskedasticity.

Table 4.6: Heteroscedasticity Test Results

```
. xttest3
Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (9)  =     1559.96
Prob>chi2 =   0.2378
```

Source: Research Data (2020)

4.5.4 Autocorrelation Test

The autocorrelation test assisted in determining whether the residuals were correlated over time. With the findings provided in Table 4.7, the null hypothesis of no autocorrelation was not rejected and a conclusion made that the residuals were not auto correlated given Prob>F=0.5351 was greater than 0.05.

Table 4.7: Autocorrelation Test Results

. xtserial tobin_q economic_growth inflation_rate exchange_rate interest_rate firm_leverage firm_performance firm_size
Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1,8) 6.417
Prob>F 0.5351

Source: Research Data (2020)

4.5.5 Stationarity Test

Since the data used in the study had the aspect of time, the study tested for the stationarity of the data by using Unit roots test. The Levin Lin Chu (LLC) test was used. The results presented in Table 4.8 show that Levin–Lin–Chu bias-adjusted t statisticsfor all the variables were significant at levels since the associated p values were less than 0.05. Therefore, the study rejected the null hypothesis that the panels contain unit roots and concluded that the series was stationary. Hence, based on this test, no differencing was required on these variables.

Table 4.8: Stationarity Test Results

Variable	Statistic	Prob.	Comment
Economic growth	-44.9229	0.0000	Stationary
Inflation rate	-8.2475	0.0000	Stationary
Exchange rate	-3.6748	0.0001	Stationary
Interest rate	-4.8849	0.0000	Stationary
Firm leverage	-5.2882	0.0000	Stationary
Firm performance	-3.3031	0.0005	Stationary
Firm size	-4.0806	0.0000	Stationary
Tobin's q	-3.9885	0.0000	Stationary

Source: Research Data (2020)

4.5.6 Hausman Test

In order to determine the most appropriate model for this study, that is, whether to apply a random or a fixed effects model, the Hausman test was conducted. The null hypothesis in this case is that the preferred model is random effects as opposed to the alternative the fixed effects (Green, 2008). The Hausman test results are presented in Table 4.9. The findings showed that Prob>chi2=0.4108 was higher than 0.05 which meant that the random effects model was the appropriate model for this study.

Table 4.9: Hausman Test Results

	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
Variable	**Fixed**	**random**	**Difference**	**S.E.**
Economic growth	5.116305	5.276297	-0.15999	0.304559
Inflation	-4.85255	-5.12381	0.271262	0.22799
Exchange rate	-0.03692	-0.03696	4.13E-05	0.000371
Interest rate	-1.66238	-1.68526	0.022882	0.101119
Firm leverage	0.064793	0.066348	-0.00156	0.003248
Firm performance	5.427369	6.865978	-1.43861	1.102434
Firm size	0.275525	0.298101	-0.02258	0.026795
chi2(2)	7.18			
Prob>chi2	**0.4108**			

Source: Research Data (2020)

4.6 Regression Analysis

In order to determine the effect that each macroeconomic factors had on the firm value of listed commercial banks in Kenya, a random effects model was run. The regression estimates assisted in the testing of the research hypotheses. The regression analysis results are presented in Table 4.10.

Table 4.10: Regression Results

. xtreg tobin_q economic_growth inflation_rate exchange_rate interest_rate firm_leverage firm_performance firm_size, re

Random-effects GLS regression Number of obs = 108

Group variable: Banks Number of groups = 9

R-sq: Obs per group:

within = 0.6288 min = 12

between = 0.7783 avg = 12.0

overall = 0.6797 max = 12

Wald chi2(7) = 173.02

corr(u_i, X) = 0 (assumed) Prob > chi2 = 0.0000

Tobin's q	**Coef.**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf. Interval]**	
Economic growth	5.276297	2.74376	1.98	0.044	-0.10137	10.65397
Inflation rate	-5.12381	1.53308	-3.34	0.001	-8.12859	-2.11903
Exchange rate	-0.03696	0.004677	-7.90	0.000	-0.04612	-0.02779
Interest rate	-1.68526	1.989824	-0.85	0.397	-5.58524	2.214724
Firm leverage	0.066348	0.030434	2.18	0.029	0.006698	0.125998
Firm performance	6.865978	3.739471	2.04	0.046	-0.46325	14.19521
Firm size	0.298101	0.0754	3.95	0.000	0.150319	0.445882
_cons	-3.29894	1.838435	-1.79	0.073	-6.9022	0.304329
sigma_u	0.409625					
sigma_e	0.406154					
rho	0.504254	(fractionofvarianceduetou_i)				

Source: Research Data (2020)

4.6.1 Economic Growth and Firm Value of Listed Commercial Banks

The study's objective was to establish the effect that economic growth had on the firm value of listed commercial banks in Kenya. Towards the realization of this objective, the following null hypothesis was tested; H_{01}: Economic growth has no significant effect on firm value of listed commercial banks in Kenya. Based on the results presented in Table 4.10, it was established that economic growth positively and in a significant way affected the firm value of these banks as supported by β=5.276297 and an associated p=0.044 which was less than the critical p value of 0.05. These findings meant that a unit increase in economic growth would result to increased firm value of Kenya's listed banks by 5.276297 units holding all

other factors constant. On the basis of these findings, the null hypothesis was therefore rejected and an inference made that economic growth has significant effect on firm value of listed commercial banks in Kenya.

These findings agree with those of studies by Aggarwal and Padhan (2017) as well as Hadi, Taufik, and Herwanto (2018) which showed that economic growth measured in terms of GDP growth rate significantly and positively impacted firm value since with high GDP growth, companies raised more equity from increased economic activities. The findings of this study further agreed with those of Gunu and Idris (2009) who found that economic growth had a positive significant on stock prices which led to increased firm value and they also supported the views by Bolt et al. (2012) that a higher level of economic growth led to increased firm value since it resulted to higher disposable income, lower unemployment and lower the rate of defaults on consumer loans. These findings, however, contradicted that of Sharma and Nathani (2018) who found that economic growth had a negative insignificant effect on firm value noting that rapid growth created confusion among the outsiders. The results of this present study also contradicted that of Moeljadi et al. (2020) who observed a negative effect of GDP on banks firm value in Indonesia. The findings also contradicted that of Makori (2015) who discovered that GDP growth rate had a weak positive but insignificant impact on firm's Tobin's q arguing that when there was economic growth in a country, firm performance was equally boosted with good returns to the capital owners.

4.6.2 Inflation Rate and Firm Value of Listed Commercial Banks

The study also sought to establish the effect of inflation on firm value of listed commercial banks in Kenya. The null hypothesis tested was that inflation has no significant effect on the firm value of listed commercial banks in Kenya. The regression estimates revealed that inflation rate negatively and significantly affected the firm value of commercial banks in Kenya (β= -5.12381, p=0.001, p<0.05). Holding all other factors constant, a unit increase in

inflation rate would result to a decline in the firm value of listed commercial banks in Kenya by 5.12381 units. With these findings, the null hypothesis was rejected and an inference made that inflation had significant influence on the firm value of listed commercial banks in Kenya.

The findings of this study concurred with that of Wamucii (2010) who found an inverse relationship between inflation and firm value of commercial banks, concluding that as inflation increased, the profits for the same period decreased thus hurting the value of these banks. The findings also supported that of Osifo and Ighodaro (2020) who found that the effect of inflation rate on the Tobin'sq of quoted deposit money banks in Kenyawas negative and significant. The study findings were also in accordance with that of Mirza and Javed (2013)and Fani et al. (2018) who observed that a higher inflation rate had a negative effect on firm value by negatively impacting the firm performance.

The findings, however, contradicted that of Nikolaus (2015) who found that inflation had a positive but insignificant effect on the Tobin's q of listed Dutch commercial and service firms, attributing the positive effect to the observation that Dutch inflation rate was much lower and relatively moderate and thus, inflation rate did not affect firms as much when it was relatively moderate. The study also contradicted that of Sameti and Moradian (2007) whose study came to a conclusion that there was no significant relationship between firm's value measured using Tobin q with inflation rate. The findings of this current study further contradicted that of Wasiuzzaman and Gunasegavan (2013) who found that inflation positively influenced the firm value of banks.

4.6.3 Exchange Rate and Firm Value of Listed Commercial Banks

The third objective of the study was to establish the effect of exchange rate on firm value of listed commercial banks in Kenya. The null hypothesis was specified as follows: H_{03}: Exchange rate has no significant effect on firm value of listed commercial banks in Kenya. The results outlined in Table 4.10 revealed that exchange rate had a negative significant

effect on the firm value of listed commercial banks in Kenya as demonstrated by β=-0.03696 and associated p value of 0.000 which was less than the critical p value of 0.05. According to these findings, a unit increase in exchange rates (depreciation of the Kenyan currency) would result to decreased firm value of the commercial banks in Kenya by 0.03696 units when all other factors are held constant. These findings led to the rejection of the null hypothesis and an inference made that exchange rate has significant effect on firm value of listed commercial banks in Kenya.

The findings supported that of Lado (2015) andEbaidalla (2014) who found that currency depreciation (when exchange rate increases, it means that domestic currency had depreciated and the foreign currency has appreciated) has a detrimental effect on the value of a firm. The study's results were also in accordance with that of Pangestuti and Louisa (2020) who found that exchange rates negatively and in a significant manner impacted the value of firms for the reason that once the domestic currency's value decreases, the public resort to witching to purchasing US dollars so the capital market would have no power since the returns from purchasing foreign currency yielded higher returns when paralleled to purchase and sell of shares. This would affect the value of listed companies. The findings were also consistent with that of Simakova(2017) which revealed a negative link between exchange rate and value of listed firms suggesting that the negative effect of uncertainties regarding the changes in the exchange rate affected cash flows and the profit levels of firms and thus, their firm values. The findings of this study, nevertheless, did not support that the findings of earlier studies byBartov and Bodnar (1994) and Jorion (1990) which indicated that foreign exchange movements did not affect firm value.

4.6.4 Interest Rateand Firm Value of Listed Commercial Banks

The study further sought to establish the effect of interest rates on firm value of listed commercial banks in Kenya. The study tested the null hypothesis that interest rate has no

significant effect on firm value of listed commercial banks in Kenya. The findings presented in Table 4.10 showed that interest rate had a negative but insignificant effect on the firm value of listed commercial banks in Kenya given β= -1.68526and associated p value of 0.397 which was higher than the critical p value of 0.05. The study therefore, failed to reject the null hypothesis and thus, it was inferred that interest rate has no significant effect on firm value of listed commercial banks in Kenya. The findings of this study also supported that of Dwita and Rahmidani (2012) who found that interest rates can have negative insignificant effect on share prices and hence, the firm value of companies. The findings of this study were also consistent with that of Pangestuti and Louisa (2020) who established that interest rate had insignificant effects on Tobin'sq of listed firms. However, these findings disagreed with that of Ebenezer et al. (2019)and Odalo et al. (2016) who found a significant relationship between interest rates and firm value of listed companies.

4.6.5 Control Variables and Firm Value of Listed Commercial Banks

The findings also showed that all the control variables namely firm leverage (β=0.066348, p=0.029, p<0.05), firm performance (β= 6.865978, p=0.046, p<0.05) and firm size (β=0.298101, p=0.000, p<0.05) positively and significantly affected the firm value of listed commercial banks in Kenya.

4.6.6 Model Summary and Fitness

As shown in Table 4.10, the overall coefficient of determination (R Square) was 0.6797 which implied that 67.97% of the changes in the firm value of listed commercial banks in Kenya over the study period were explained by the changes in macroeconomic factors namely economic growth, inflation, exchange rate and interest rate together with firm leverage, firm performance and firm size as control variables. The rest of the changes in the firm value of these banks, 32.03%, were attributed to other factors not considered in this study.

The results obtained also showed that the model that was applied in showing the relationship between the study variables was significant. In this study, the Wald chi-square was used in assessing whether the overall study model fitted the data well. As demonstrated by the findings outlined n Table 4.10, the p value that was linked to the Wald chi-square statistic(173.02) was 0.000 implying that when considered together, the regression coefficients obtained were statistically significant. Therefore, a conclusion was drawn that the model fitted in this study was significant in providing an explanation of the nature of relationship that existed between macroeconomic factors and the firm value of commercial banks in Kenya.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the major study findings and the conclusions drawn from these results. The recommendations for policy and practice as well as the suggestions for further study are also contained in this section. The alignment of the summary of findings, conclusions and recommendations is guided by the specific objectives of the study.

5.2 Summary of Findings

The main objective of this study was to establish the effect of macroeconomic factors on the firm value of listed commercial banks in Kenya for period 2008 to 2019. The study sample consisted of 9 commercial banks listed at the NSE whose data was available for the period under study. In order to realize this general objective, four specific objectives were developed. Four null hypotheses based on these four objectives were then tested and the main findings are highlighted as follows: -

5.2.1 Economic Growth and Firm Value of Listed Commercial Banks in Kenya

The study sought to establish the effect of economic growth on firm value of listed commercial banks in Kenya. The study findings obtained revealed that the firm value of these banks was positively affected by the country's economic growth. These findings implied that enhanced economic growth as measured by annual percentage GDP growth rate would translate to increased firm value of Kenya's listed banks and vice versa. A calculated p value of 0.044 associated with the beta coefficient of economic growth was a confirmation that a significant relationship existed between the level of economic growth and firm value of listed commercial banks in Kenya. These findings resulted to the null hypothesis being

rejected and an inference made that economic growth has significant effect on firm value of listed commercial banks in Kenya.

It is normally expected that growth in GDP will impact many factors linked to demand and supply of bank loans and deposits. It is likely that increased growth in GDP would result to higher disposable income, lower unemployment and lower the rate of defaults on consumer loans. These would lead to economic gains for banks which could drive their firm value. Moreover, increased economic growth was linked to the expansion of economic activities which improved the purchasing power of the public and this in turn increased and provided banks with opportunities for increasing their sales resulting to enhanced profitability which could push their stock prices up and in so doing, increase their firm value. Increased national income could also translate to increased corporate income for banks which could also enhance their value.

5.2.2 Inflation and Firm Value of Listed Commercial Banks in Kenya

The study also sought to establish the effect of inflation on firm value of listed commercial banks in Kenya. The study established that inflation rate negatively affected the firm value of these banks. The effect of inflation rate on the firm value of listed commercial banks in Kenya was also found to be significant as demonstrated by a p value of 0.001 that was associated with the regression coefficient for inflation rate. It was therefore, deduced that higher levels of inflation in the country were followed by declines in the firm value of listed commercial banks in the nation and that the decline in the firm value of these banks was considerable. The null hypothesis that inflation has no significant effect on the firm value of listed commercial banks in Kenya was therefore, rejected and the alternative accepted.

These findings provided a justification of the observation that inflation is likely to impact the citizens' ability or power to make purchases, the value that money has, the interest rates that banks charged or received, all of which ultimately impacted their performance and also their

value .Inflation negatively affected firm value of banks by decreasing disposable personal income and savings of people which reduced the level of bank deposits and also because when inflation levels go up, the goods or even services demanded by individuals decreased which meant a decline in the bank loans demanded by customers. Increase in inflation rate led to increased lending interest rates which might also translate to reduced bank loans associated with high financing costs. This was unattractive circumstances for borrowers and they might abstain from acquiring bank loans. This adversely influenced bank's profits and performance and ultimately their firm value.

5.2.3 Exchange Rate and Firm Value of Listed Commercial Banks in Kenya

The study also sought to establish the effect of exchange rate on firm value of listed commercial banks in Kenya. The study observed that exchange rate and the firm value of listed commercial banks in Kenya were inversely related where increased exchange rates led to decreased firm value of these banks. The effect of exchange rate on the firm value of the banks was found to be significant as illustrated by a calculated p value of 0.000 associated with the beta coefficient for this variable. With these findings, a decision was arrived at to reject the null hypotheses that exchange rate has no significant effect on firm value of listed commercial banks in Kenya. An inference was therefore, made that exchange rate has a significant effect on the firm value of these banks.

Given their role in international trade through financial intermediation, the value of banks is likely to be impacted by fluctuations in foreign exchange rates. Exchange rate variations can have a significant effect on the value of firms by affecting their cash flows, assets and liabilities. It has been suggested that the negative impact resulting from uncertainty about the development of exchange rate affects the cash flow and profitability of firms and thus their market values. Depreciation of the domestic currency impacts the national economy which will ultimately lower the share prices or firm value in different sectors including banks.

5.2.4Interest Rate and Firm Value of Listed Commercial Banks in Kenya

The study further sought to establish the effect of interest rate on firm value of listed commercial banks in Kenya. It was found that there was an inverse relationship between interest rate and the firm value of listed commercial banks in Kenya. The effect of interest rate on the firm value of these banks was however found to be insignificant given that the computed p value of 0.397 was greater than 0.05. These findings meant that though increased interest rate led to decreased firm value of listed commercial banks in Kenya, the decrease in firm value of these banks was not significant. With these findings, the study failed to reject the null hypothesis and an inference was made that interest rate has no significant effect on the firm value of listed commercial banks in Kenya.

The insignificant effect of interest rates on firm value could be explained by the observation that a rise in interest rates may not deter some bank customers from acquiring loans thus enhancing the interest payments made by borrowers on loans. The banks' management might also be able to take measures to manage the exposure of their banks to interest rate risk and hence, safeguard their balance sheet against interest rate changes. These actions can serve to minimize the adverse effect of increased interest rates on the value of their banks.

5.3 Conclusions

The study found that economic growth had a positive significant effect on the firm value of listed commercial banks in Kenya. The study, therefore, concluded that higher levels of economic growth lead to increased firm value of these banks. The study also concluded that even though interest rate does not significantly affect the firm value of listed commercial banks in the country, its impact when combined with other variables is worth considering. This is particularly crucial since its impact on the firm value of the banks was negative. The study also established that inflation rate and exchange rate had a negative significant effect on the firm value of listed commercial banks in Kenya. Hence, it was concluded that higher

inflation rates and exchange rates had adverse effect on the firm value of listed commercial banks in Kenya. Overall, it can be concluded that macroeconomic factors particularly economic growth, inflation rate and exchange rate are significant factors that influence the firm value of listed commercial banks in Kenya and therefore, it is prudent for the management of banks to consider them when evaluating the factors likely to impact the value of their banks.

5.4 Recommendations

It is recommended that although controlling macroeconomic factors is a challenge, particular measures can be employed by policy makers and economists in relevant agencies such as the Central Bank of Kenya so that the adverse impacts of these factors on the economy in general and individual firms including banks can be minimized. The Central Bank of Kenya ought to for instance, come up with robust mechanisms for controlling interest rates and curbing the inflation levels since they negatively affect the firm value of commercial banks. Hence, the Central Bank of Kenya in conjunction with other regulators should be able to undertake sound planning in advance so as to influence macroeconomic variables in the right direction.

The government of Kenya through different agencies across different ministries should stimulate growth across all sectors in the nation by creating a favourable environment for the country's economy to thrive. The government policy must be geared towards ensuring that inflation rates are maintained at levels that are manageable and which do not hurt consumption within the domestic market. The government through the Central Bank of Kenya should also develop policies geared towards safeguarding the value of the domestic currency by ensuring that fluctuations in the exchange rates are minimal and if need be, there must be government intervention in the market if the foreign exchange risks affect the banking sector. Government policies to stabilize the exchange rate will enhance the value of listed commercial banks in Kenya. The government through the relevant institutions should

provide an environment that not only helps but also encourages firms to effectively use hedging instruments against exchange rate exposure.

The banks' management should also strive to ensure sustained high firm value for the sake of the stability of their operations as well as good prospects for their banks in the future. This will enhance their survival. The study recommends that the management of listed commercial banks in Kenya ought to be vigilant and concerned about the macroeconomic variables that are likely to impact the firm value of their banks given that increased firm value can be crucial for investors and shareholders in as far as investment decisions are concerned.

The banks' management ought to develop their banks' capabilities to be highly sensitive in anticipating the effect of macroeconomic factors which are external forces to their firms and are unavoidable. The management of these banks for example, should ensure that efficient and active hedging strategies against fluctuations in the exchange rates are employed with an aim of maintaining their firm value high. The banks' management should ensure that adequate measures are put in place in their banks so that there is proper management of interest rate risks which will ensure that their firm value is not affected.

Several investors are keen on investing in the stocks of commercial banks in the nation. For this reason, the study recommends that these investors must be able to explore and learn more about the macroeconomic factors considered in this study and other macroeconomic information that may impact the value of listed commercial banks and also other crucial macroeconomic events that are likely to influence the stock market conditions. This will enable them to make sound investment decisions.

5.5 Suggestions for Further Research

The study recommends for a comprehensive comparative study in order to determine whether macroeconomic variables affect differently the firm value of listed companies drawn from

different sectors/industries since mixed findings have been observed in available literature. The study also recommends that a study which covers other macroeconomic factors not considered in this study can be undertaken. A study to clarify the inconclusive findings in this study can also be undertaken. The study also recommends that a study which incorporates a moderating or intervening variable is crucial in order to determine the variables likely to impact the strength of the relationship between macroeconomic factors and the firm value of listed commercial banks in Kenya so that adequate policy measures can be undertaken.

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APPENDICES

APPENDIX I: LIST OF LISTED COMMERCIAL BANKS AT NSE

	A list of commercial banks listed at Nairobi Securities Exchange
1.	ABSA Bank Kenya PLC
2.	BK Group PLC Ord
3.	CFC Stanbic Holdings Ltd
4.	Diamond Trust Bank Kenya Ltd
5.	Equity Group Holdings
6.	HF Group Ltd
7.	I & M Holdings Ltd
8.	KCB Group Ltd
9.	National Bank of Kenya Ltd
10.	NCBA Group PLC
11.	Standard Chartered Bank Ltd
12.	The Co-operative Bank Ltd

APPENDIX II: DATA COLLECTION FORM

Serial Number……..

Bank Name…….

Year/variable	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Firm value																
X_1																
X_2																
X_3																
X_4																
X_5																
X_6																
X_7																